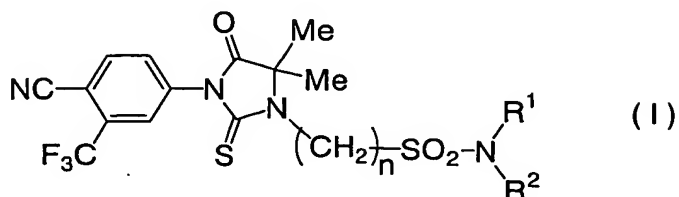


CLAIMS

[1] A compound represented by formula (I):

[Formula 1]



5

wherein  $n$  is an integer selected from 1 to 20, and  $R^1$  and  $R^2$ , which may be the same or different, each represent a hydrogen atom or a linear or branched  $C_1$ - $C_6$  alkyl group, or a salt, a prodrug or a solvate thereof.

10 [2] A compound according to claim 1 or a salt, a prodrug or a solvate thereof, wherein  $n$  is an integer selected from 1 to 10.

[3] A compound according to claim 1 or 2 or a salt, a prodrug or a solvate thereof, wherein  $R^1$  and  $R^2$  are each a  
15 hydrogen atom.

[4] A compound according to any one of claims 1 to 3 or a salt, a prodrug or a solvate thereof, wherein at least one of  $R^1$  and  $R^2$  is a methyl group.

[5] A compound according to any one of claims 1 to 4,  
20 which is selected from the group consisting of:

4-[3'-(3"-aminosulfonylpropyl)-4',4'-dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-trifluoromethylbenzonitrile;

4-[3'-(4"-aminosulfonylbutyl)-4',4'-dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-trifluoromethylbenzonitrile;

- 4-[3'-(6"-aminosulfonylhexyl)-4',4'-dimethyl-5'-oxo-  
2'-thioxo-1'-imidazolidinyl]-2-trifluoromethylbenzonitrile;
- 4-[3'-(7"-aminosulfonylheptyl)-4',4'-dimethyl-5'-oxo-  
2'-thioxo-1'-imidazolidinyl]-2-trifluoromethylbenzonitrile;
- 5 4-[3'-(8"-aminosulfonyloctyl)-4',4'-dimethyl-5'-oxo-  
2'-thioxo-1'-imidazolidinyl]-2-trifluoromethylbenzonitrile;
- 4-[3'-(9"-aminosulfonylnonyl)-4',4'-dimethyl-5'-oxo-  
2'-thioxo-1'-imidazolidinyl]-2-trifluoromethylbenzonitrile;
- 4-[3'-(5"-aminosulfonylpentyl)-4',4'-dimethyl-5'-oxo-  
10 2'-thioxo-1'-imidazolidinyl]-2-trifluoromethylbenzonitrile;
- 4-[3'-(4"-N,N-dimethylaminosulfonylbutyl)-4',4'-  
dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile;
- 4-[3'-(3"-N,N-dimethylaminosulfonylpropyl)-4',4'-  
15 dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile;
- 4-[3'-(5"-N,N-dimethylaminosulfonylpentyl)-4',4'-  
dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile;
- 20 4-[3'-(6"-N,N-dimethylaminosulfonylhexyl)-4',4'-  
dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile;
- 4-[3'-(7"-N,N-dimethylaminosulfonylheptyl)-4',4'-  
dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
25 trifluoromethylbenzonitrile;
- 4-[3'-(8"-N,N-dimethylaminosulfonyloctyl)-4',4'-  
dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile;

4-[3'-(9"-N,N-dimethylaminosulfonylnonyl)-4',4'-  
dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile;

5 4-[3'-(3"-N-methylaminosulfonylpropyl)-4',4'-  
dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile;

4-[3'-(4"-N-methylaminosulfonylbutyl)-4',4'-dimethyl-  
5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile;

10 4-[3'-(5"-N-methylaminosulfonylpentyl)-4',4'-  
dimethyl-5'-oxo-2'-thioxo-1'-imidazolidinyl]-2-  
trifluoromethylbenzonitrile; and

4-[3'-(2"-aminosulfonylethyl)-4',4'-dimethyl-5'-oxo-  
2'-thioxo-1'-imidazolidinyl]-2-trifluoromethylbenzonitrile  
15 or a salt, a prodrug or a solvate thereof.

[6] A drug which comprises the compound according to any  
one of claims 1 to 5 or a salt, a prodrug or a solvate  
thereof as an active ingredient.

[7] A pharmaceutical composition which comprises the  
20 compound according to any one of claims 1 to 5 or a salt, a  
prodrug or a solvate thereof as an active ingredient.

[8] An anti-androgen agent which comprises the compound  
according to any one of claims 1 to 5 or a salt, a prodrug  
or a solvate thereof as an active ingredient.

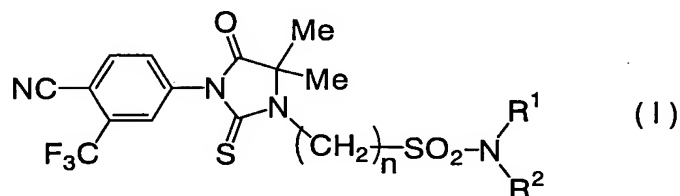
25 [9] A prophylactic or therapeutic agent for a disease  
selected from prostate cancer, benign prostatic  
hypertrophy, male pattern baldness, sexual precociousness,  
common acne, seborrhea and hypertrichosis, which comprises

the compound according to any one of claims 1 to 5 or a salt, a prodrug or a solvate thereof as an active ingredient.

[10] The use of the compound according to any one of claims 1 to 5 or a salt, a prodrug or a solvate thereof in manufacturing a medicament used as an androgen receptor antagonist.

[11] A process for preparing a compound represented by formula (I):

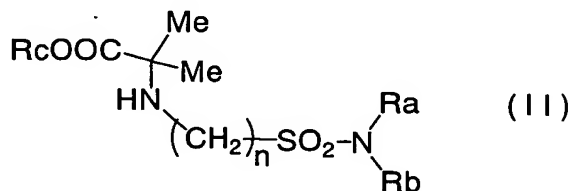
10 [Formula 2]



wherein  $n$ ,  $R^1$  and  $R^2$  are as defined in claim 1, which comprises the steps of:

reacting a compound represented by formula (II):

15 [Formula 3]



wherein

$n$  is an integer selected from 1 to 20;

Ra and Rb, which may be the same or different, are each selected from the group consisting of a linear or

20

branched C<sub>1</sub>-C<sub>6</sub> alkyl group substituted with one or more W<sup>1</sup>,  
a linear or branched C<sub>1</sub>-C<sub>6</sub> alkylcarbonyl group which may be  
substituted with one or more W<sup>1</sup>, an arylcarbonyl group  
which may be substituted with one or more W<sup>2</sup>, a linear or  
5 branched C<sub>1</sub>-C<sub>6</sub> alkoxy carbonyl group which may be substituted  
with one or more W<sup>1</sup>, an aryloxy carbonyl group which may be  
substituted with one or more W<sup>2</sup>, a linear or branched C<sub>1</sub>-C<sub>6</sub>  
alkylaminocarbonyl group which may be substituted with one  
or more W<sup>1</sup>, a linear or branched C<sub>1</sub>-C<sub>6</sub> dialkylaminocarbonyl  
10 group which may be substituted with one or more W<sup>1</sup>, a  
linear or branched C<sub>1</sub>-C<sub>6</sub> alkylsulfonyl group which may be  
substituted with one or more W<sup>1</sup>, an arylsulfonyl group  
which may be substituted with one or more W<sup>2</sup>, and R<sup>1</sup> and R<sup>2</sup>;  
or

15 Ra and Rb may be joined together to form a group  
=CH-W<sup>3</sup>;

W<sup>1</sup> is a linear or branched C<sub>1</sub>-C<sub>6</sub> alkoxy group, a  
linear or branched C<sub>1</sub>-C<sub>6</sub> alkylthio group, a linear or  
branched C<sub>1</sub>-C<sub>6</sub> alkylsulfinyl group, a linear or branched  
20 C<sub>1</sub>-C<sub>6</sub> alkylsulfonyl group, an aryl group which may be  
substituted with one or more W<sup>2</sup>, an aryloxy group which may  
be substituted with one or more W<sup>2</sup>, or a C<sub>1</sub>-C<sub>3</sub> aralkyloxy  
group which may be substituted with one or more W<sup>2</sup>;

W<sup>2</sup> is a linear or branched C<sub>1</sub>-C<sub>6</sub> alkyl group, a linear  
25 or branched C<sub>1</sub>-C<sub>6</sub> alkoxy group, a linear or branched C<sub>1</sub>-C<sub>6</sub>  
haloalkyl group, a halogen atom, a cyano group, or a nitro  
group;

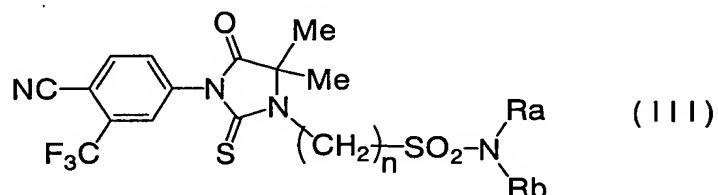
W<sup>3</sup> is a linear or branched C<sub>1</sub>-C<sub>6</sub> alkyl group, a linear

or branched C<sub>1</sub>-C<sub>6</sub> alkoxy group, a linear or branched C<sub>1</sub>-C<sub>6</sub> alkylamino group, or a linear or branched C<sub>1</sub>-C<sub>6</sub> dialkylamino group;

R<sup>1</sup> and R<sup>2</sup> are as defined in claim 1; and

5 R<sub>c</sub> is a linear or branched C<sub>1</sub>-C<sub>6</sub> alkyl group with 4-cyano-3-trifluoromethylphenyl isothiocyanate to obtain a compound represented by formula (III):

[Formula 4]

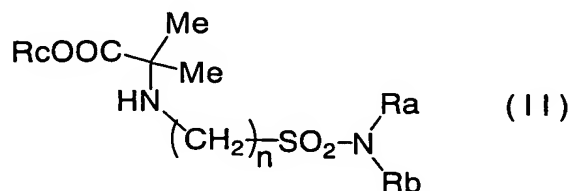


10 wherein n, Ra and Rb are as defined above; and

a deprotection in cases where at least one of the groups Ra and Rb is other than R<sup>1</sup> and R<sup>2</sup>.

[12] A compound represented by formula (II):

[Formula 5]

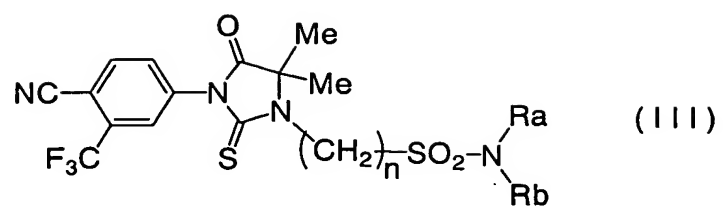


15

wherein n, Ra, Rb and R<sub>c</sub> are as defined in claim 11.

[13] A compound represented by formula (III):

[Formula 6]



wherein  $n$ ,  $\text{Ra}$  and  $\text{Rb}$  are as defined in claim 11.